Space Weather Forecast

Issued on Sunday, 06 November 2022 at 01:05 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight chance G1/minor storms from day 2 (7th-9th). Slight chance of Moderate Class flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low through the last 24 hours, with a few low level common class flares observed in the past 24 hour period. There are eight active regions, which are mainly covering the northern hemisphere. One large spot in the northeast, and three modest spots, two on the northwest and one in the northeast. All other spots are small and simple. No significant Earth-directed coronal mass ejections have been identified in recent imagery.

Solar Wind / Geomagnetic Activity: The solar wind is showing a declining influence from coronal hole 39 with speeds declining from elevated to slightly elevated. Total magnetic field strength has been weak with a declining trend. The north-south component has varied weakly, with a mostly negative bias noted. Geomagnetic activity has fallen from Unsettled and Active (Kp 3-4) to Quiet (Kp 1-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be mainly Low, with a slight chance of Moderate activity. There also remains a risk from further regions rotating onto the disc from the far side of the Sun.

Solar Wind / Geomagnetic Activity: No Earth directed coronal mass ejections feature in the forecast. The high speed stream from coronal hole 39 is expected to decline to slow-ambient levels by the end of day 1 (6th). Coronal hole 42 may then connect with the Earth either later on day 2 (7th) or during day 3 (8th), although there is low confidence in the strength of any connection. There is a chance that earth may connect to coronal holes 40 or 41 on day 4 (9th). Geomagnetic activity is expected to be mainly Quiet to Unsettled, but there is a slight chance of Active or G1/Minor Storm intervals from day 2 onward (7th-9th) due to successive arrivals of coronal hole fast winds.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to persist at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	10	10	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	20	20	20
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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